

The Case Forty-One of Crossed Unfused Renal Ectopia

Aamir Jalal Al-Mosawi

¹Advisor Doctor, Children Teaching Hospital of Baghdad Medical City, Baghdad, Iraq

²Head, Iraq Headquarter of Copernicus Scientists International Panel Baghdad, Iraq

Email: almosawiAJ@yahoo.com

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Abstract: Background: Renal ectopia is a congenital abnormality in which one or both kidneys are located in an unusual position. Crossed renal ectopia is mostly asymptomatic, but sometimes is associated with abdominal or flank pain, abdominal mass, hematuria, and urinary tract infections. Crossed renal ectopia without fusion is one of the rarest abnormalities of the urinary system with about 40 cases reported in the literature. The condition has not been reported in Iraq. **Patients and methods:** A five year old boy with renal abnormalities on abdominal ultrasound was studied. **Results:** M.R.A, five year old boy who was evaluated with abdominal ultrasound after treatment for urinary tract infection. Ultrasound showed that the right kidney was normal in size, position, and shape, but the left kidney was present on the right side of the upper abdomen near the right kidney. The left kidney was normal in size and had normal parenchyma. Renal function tests showed normal findings. **Conclusion:** Apart from autopsy studies, the case forty-one of crossed unfused renal ectopia is reported.

Keywords: crossed renal ectopia, unfused, Iraq.

Introduction

Renal ectopia is a congenital abnormality in which one or both kidneys are located in an unusual position. The condition occurs because of failure of normal ascend from its origin in the true pelvis. In unilateral crossed renal ectopia, both kidneys are present on the same side of the body, and in many cases the kidneys become fused (crossed fused renal ectopia).

In crossed ectopia, the ureter of the ectopic kidney usually passes over the midline to enter the bladder at the normal anatomic position. Crossed renal ectopia is mostly asymptomatic, but sometimes is associated with abdominal or flank pain, abdominal mass, hematuria, and urinary tract infections. Crossed renal ectopia without fusion is one of the rarest abnormalities of the urinary system with about 40 cases reported in the literature [1-20]. The condition has not been reported in Iraq.

Patients and methods

A five year old boy with renal abnormalities on abdominal ultrasound was studied.

Results

M.R.A, five year old boy who was evaluated with abdominal ultrasound after treatment for urinary tract infection. A part from occasional abdominal pains, the child was considered healthy. Ultrasound (Figure-1) showed that the right kidney was normal in size, position, and shape, but the left kidney was present on the right side of the upper abdomen near the right kidney.

The left kidney was normal in size and had normal parenchyma. Renal function tests showed normal findings.

Discussion

Crossed renal ectopia without fusion is an extremely rare condition with about 3 cases reported in the literature [1]. Eight cases were reported during the 1940s and 1950s [1-8]. In 1946, Resnick and Clark reported the demonstration of crossed unfused ectopia by fluoroscopy [1].

Four cases were reported during the 1960s [9, 10, 11], and four cases were reported during the 1970s [12, 13, 14]. Falkinburg, Kay, and Klutz [9] reported a crossed renal ectopia without fusion in a seven-month-old female infant. Pathak [10] reported crossed renal ectopia without fusion associated with giant hydronephrosis. Nummi [11] reported two cases of crossed renal ectopia including one patient having two non-fused kidneys on the right side. The bifid pelvis of the crossed kidney showed abnormal peristalsis which delayed emptying; the delay was relieved by resection of a dilated limb of the bifid pelvis. In the second patient a single, crossed kidney with anomalous blood supply from the contralateral common iliac artery was present.



Figure 1. Ultrasound showed that the left kidney was present on the right side of the upper abdomen near the right kidney. The right kidney was normal in size with normal parenchymal texture. The crossed ectopic kidney was also normal in size with normal parenchymal texture.

Rubinstein et al. [12] reported the angiographic findings in six patients with crossed renal ectopia including two single crossed ectopic kidneys. They showed that all kidneys (ectopic and non-ectopic) had an anomalous blood supply. There was no constant arterial pattern, and renal arteries were found to arise from the aorta both above and below the normal level and from the iliac arteries. Dhar, Chandrasekhar, and Smith [13] reported a patient with cross-ectopia detected during the evaluation of renal failure. Hertz et al. [14] reported a case of an unfused ectopic kidney associated with unusual mobility.

Five cases were reported during the 1980s. Miyakita, Matsushita, and Kawamura [15] reported two cases of crossed renal ectopia without fusion who had normal renal functions and the condition was detected during the evaluation of non-renal disorder. One patient was a 26-year-old woman who had infertility associated with hydrosalpinx which was hysterosalpingography. Intravenous pyelography and renoscintigraphy showed crossed renal ectopia without fusion. The second patient was a 28-year-

old man who had hypospadias. Intravenous pyelography and retrograde pyelography showed crossed renal ectopia without fusion. The patients had subjectively no complaints, and the renal functions were unimpaired. So we decided to follow them up.

McCarthy and Rosenfield [16] reported the identification of two cases of unfused renal ectopia with ultrasound.

Six cases were reported during the 1990s [18-23], four cases were reported during the 2000s. Mottola, Bartoletti, and Dami [18] from Italy reported a case of crossed unfused renal ectopia associated with lithiasis that was found IVP examination. Gudmundsen Steinsvik [19] a case of crossed unfused renal ectopia associated nephrolithiasis and pain on the side opposite to the renal mass. Felzenberg J, Nasrallah [20] from Ohio reported a case of ureteropelvic junction obstruction resulting from a high ureteral insertion in the pelvis of a crossed unfused ectopic kidney. Jolles et al. [21] from Arkansas reported a case of unfused, crossed renal ectopia in an elderly woman that was presented as an abdominal mass. Aydin et al. [22] from Turkey emphasized that bilateral crossed renal ectopia is the rarest form of unfused renal ectopia. They reported a 19-year-old girl who had intermittent flank pain. Excretory urography showed that the distal ends of the ureters crossed each other in the pelvis suggesting bilateral crossed renal ectopia. Mansberg et al. [23] from Australia reported crossed renal ectopia without fusion with ectopic left ureter inserting into a prostatic utricle diverticulum.

Mustafa and Alkan [24] from Turkey reported an 18-year-old male who had left flank pain associated with pelviuretric junction obstruction caused by aberrant vessels in left malrotated kidney and right renal cross ectopia without fusion. Nursal and Büyükdereli [25] from Turkey presented static and dynamic scintigraphic images of two patients with unfused crossed renal ectopia. Pace et al. [26] from Italy reported a female with Mayer-Rokitansky-Küstner-Hauser syndrome presented with left pelvic pain due to a hydronephrosis of the right cross ectopic kidney. The patient had absence of the upper vagina, uterine agenesis, asymmetric hypoplasia of the buds associated with left kidney agenesis and cross-ectopia of the right kidney which was visualized in the left iliac fossa.

Nine cases were reported after 2010 [27-35]. Ramaema, Moloantoa, and Parag [27] reported a 16-year-old adolescent male who had crossed renal ectopia without fusion presented with unexplained acute abdominal pain without any obvious complications such as hydronephrosis or stone. The patient was treated successfully with analgesics and anti-inflammatory medications. Taslim et al. [28] from Lagos reported the unusual association of crossed renal ectopia with nephrolithiasis in a 34 year-old Nigerian man who with a three-month history of intermittent dull right flank pain radiating to the right groin.

Grewal [29] reported a case of a right-sided hydronephrotic unfused crossed renal ectopic kidney causing left ureter obstruction and acute renal failure. The patient was treated with nephrectomy was indicated as a renogram showed minimal renal function in the ectopic kidney. Lodh et al. [30] from India reported a case of left unfused crossed renal ectopia in a 7-year-old boy associated with left cryptorchid left testis. The patient was treated with left nephrectomy, and histopathology showed chronic pyelonephritis without any evidence of dysplastic changes. Pelegrí et al. [32] from Spain reported two male patients of right crossed non-fused renal ectopia diagnosed at about the age 30 years when presented with acute renal colic.

Gambhir et al. [33] from India reported an incidentally detected bilateral crossed renal ectopia without fusion on Tc-DTPA scan in the setting of uncertain ultrasound examination finding and impaired renal function. Kodama, Takase, and Tatsu [34] from Japan reported a case of inferior crossed renal ectopia without fusion associated with a ureteral stone treated successfully by extracorporeal shock wave lithotripsy. Degheili et al. [35] from Lebanon reported the incidental finding of crossed unfused ectopic kidneys, in a 45-year-old male patient who had a bladder lesion.

Conclusion

Apart from autopsy studies, the case forty-one of crossed unfused renal ectopia is reported.

Conflict of Interest: I have no conflict of interest.

References

1. Resnick B, Clark JH. Renal ectopia: Demonstration of crossed unfused ectopia by fluoroscopy. *The J Urol*. 1946 Aug;56(2):173-8.
2. Baurys W. Crossed renal ectopia; unfused type. *Guthrie Clin Bull*. 1947 Jan;16(3):88.
3. Lee HP. Crossed unfused renal ectopia with tumor. *The J Urol*. 1949 Feb;61(2):333-9.
4. Keusenhoff W. Crossed ectopia of the kidneys. *Z Urol*. 1956;49(2):114-6.
5. Caine M. Crossed renal ectopia without fusion. *British J Urol*. 1956 Sep;28(3):257-8.
6. Shih HE, Sun WH, Ch'eN HK. Crossed unfused renal ectopia. *Chinese Med J*. 1957 Oct;75(10):841-8.
7. Abeshouse BS, Bhisitkul I. Crossed renal ectopia with and without fusion. *Urol Int* 1959; 9:63-91.
8. Winram RG, Ward-McQuaid JN. Crossed renal ectopia without fusion. *Can Med Assoc J*. 1959 Sep 15; 81:481-3.
9. Falkinburg LW, Kay MN, Klutz WS. Crossed Renal Ectopia Without Fusion: Report of a Case in a Seven-Month-Old Female Infant, with Review. *AMA J Dis Child*. 1960 Jan 1;99(1):86-9.
10. Pathak IC. Crossed renal ectopia without fusion associated with giant hydronephrosis. *J Urol*. 1965 Oct;94(4):323-6.
11. Nummi P. Crossed renal ectopia. Reports of two cases, one with abnormal renal pelvic peristalsis. *Scand J Urol Nephrol*. 1969;3(2):151-6.
12. Rubinstein ZJ, Hertz M, Shahin N, Deutsch V. Crossed renal ectopia: angiographic findings in six cases. *American J Roentgenol*. 1976 May 1;126(5):1035-8.
13. Dhar SK, Chandrasekhar H, Smith EC. Renosonogram in diagnosis of renal failure. *Clin Nephrol*. 1977 Jan;7(1):15-20.
14. Hertz M, Rubinstein ZJ, Shahin N, Melzer M. Crossed renal ectopia: clinical and radiological findings in 22 cases. *Clin Radiol*. 1977 Jan 1;28(3):339-44.
15. McCarthy S, Rosenfield AT. Ultrasonography in crossed renal ectopia. *J Ultrasound Med*. 1984 Mar;3(3):107-12.
16. Miyakita H, Matsushita K, Kawamura N. Two cases of crossed renal ectopia without fusion. *Hinyokika kyo*. *Acta Urol Japon*. 1985 Feb;31(2):295-9.
17. Iwasaki M, Nakada T, Katayama T. A case report of crossed renal ectopia with renal stone. *Hinyokika kyo*. *Acta Urol Japon*. 1988 Aug;34(8):1425-9.
18. Mottola A, Bartoletti R, Dami A. Crossed renal ectopy without fusion associated with lithiasis. *Arch Esp Urol*. 1990 Jun;43(5):560-2.
19. Gudmundsen TE, Steinsvik ED. Crossed renal ectopia with nephrolithiasis. *Tidsskr Nor Laegeforen* 1990 Aug 10; 110(18):2360-1.
20. Felzenberg J, Nasrallah PF. Crossed renal ectopia without fusion associated with hydronephrosis in an infant. *Urol*. 1991 Nov 1;38(5):450-2.

21. Jolles PR, Yassa NA, Shah HE, Purnell GL. Crossed renal ectopia. Correlative imaging. Clin Nucl Med. 1992 Apr;17(4):306-7.
22. Aydın S, Odabas O, Yılmaz Y, Bozkurt M, Atilla K, Onur D, Doğ GA. A suspected case of bilateral crossed renal ectopia or bilateral jet effect. Urol Int. 1996;57(4):235-6.
23. Mansberg V, Rossleigh MA, Farnsworth RH, Van Rooijen M. Unfused crossed renal ectopia with ectopic left ureter inserting into a prostatic utricle diverticulum. AJR American J Roentgenol. 1999 Feb;172(2):455-6.
24. Mustafa M, Alkan E. Aberrant vessels in ipsilateral malrotated kidney associated with contralateral cross ectopia without fusion. Int Urol Nephrol. 2005 Mar 1;37(1):39-41.
25. Nursal GN, Büyükdereli G. Unfused renal ectopia: a rare form of congenital renal anomaly. Ann Nucl Med. 2005 Sep 1;19(6):507-10.
26. Pace G, Navarra F, Paradiso GG, Vicentini C. The Mayer-Rokitansky-Küstner-Hauser syndrome. Arch Ital Urol Androl. 2007 Mar;79(1):39-40.
27. Ramaema DP, Moloantsoa W, Parag Y. Crossed renal ectopia without fusion—an unusual cause of acute abdominal pain: a case report. Case Rep Urol. 2012:1-4.
28. Taslim BB, Abdulwasii BA, Olusegun S, Oluwatoyin AC, Omolara MM. Crossed renal ectopia coexisting with nephrolithiasis in a young Nigerian man. Arab J Nephrol Transplant. 2012;5(2):107-10.
29. Grewal SS. Crossed renal ectopia presenting with suprapubic swelling and acute renal failure. J Pak Med Assoc. 2013;63(9):1189-1191.
30. Lodh B, Kanwar V, Singh AK, Singh SR. Unfused crossed renal ectopia with ipsilateral anorchia: a rare entity. J Clin Diagn Res. 2013 Sep;7(9):2029-30.
31. Prasad S, Thomas J. Crossed unfused renal ectopia. BMJ Case Rep. 2014 Feb 10;2014.
32. Pelegrí Gabarró J, Guiote Partido I, Oliva Encina J, Rioja Sanz C. Crossed renal ectopia. Arch Esp Urol. 2014 Sep;67(7):634-7.
33. Gambhir A, James VM, Kumar A, Jaimini A, Mondal A. Bilateral Crossed Unfused Renal Ectopia. Clin Nucl Med. 2015 Oct;40(10):805-7.
34. Kodama K, Takase Y, Tatsu H. Management of ureterolithiasis in a patient with crossed unfused renal ectopia. Case Rep Urol. 2016;2016:1847213.
35. Degheili JA, AbuSamra MM, El-Merhi F, El-Hajj A. Crossed unfused ectopic pelvic kidneys: A case illustration. Case Rep Urol 2018 May 7;2018:7436097.

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